

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



107520247



(43) International Publication Date
15 January 2004 (15.01.2004)

PCT

(10) International Publication Number
WO 2004/004983 A3

(51) International Patent Classification⁷: G11B 23/00

MORAN, Barbara [GB/GB]; 89 Lurgan Road, Crumlin, BT29 4QQ (GB).

(21) International Application Number:
PCT/EP2003/007262

(74) Agents: O'CONNELL, Maura et al.; F.R. Kelly & Co., 4 Mount Charles, Belfast BT7 1NZ (GB).

(22) International Filing Date: 4 July 2003 (04.07.2003)

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0215419.3 4 July 2002 (04.07.2002) GB

(71) Applicant (for all designated States except US): MO TEAM LIMITED [GB/GB]; 25 Aghnadarragh Road, Crumlin, BT29 4QQ (GB).

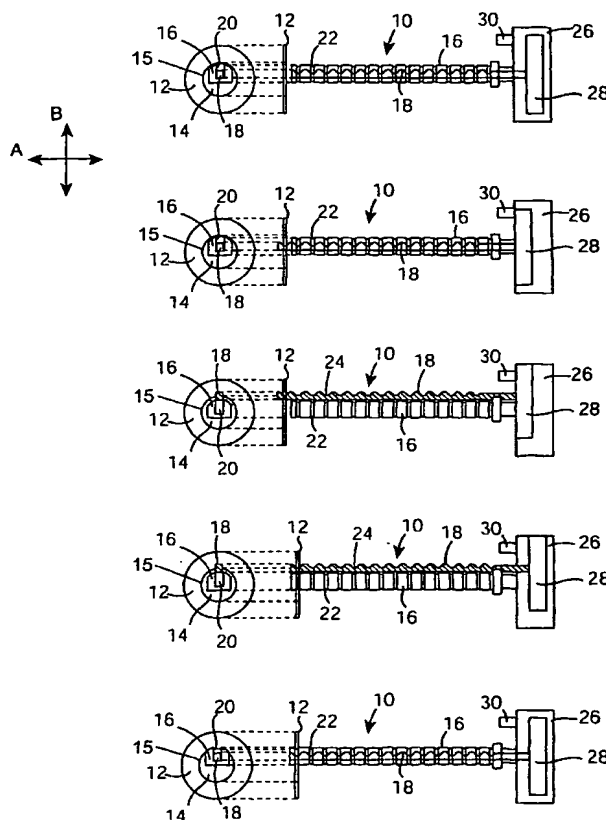
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

(72) Inventors; and

(75) Inventors/Applicants (for US only): MORAN, Robert [GB/GB]; 89 Lurgan Road, Crumlin, BT29 4QQ (GB).

[Continued on next page]

(54) Title: APPARATUS AND METHOD FOR HANDLING DISCS PROVIDED WITH AN APERTURE



(57) Abstract: The present invention is concerned with both a method and an apparatus for handling objects, in particular discs (12) such as CD's or the like having an aperture (14) therein defining a rim (15), the method comprising the steps of providing an elongate arm (18), and providing an elongate support (16) adjacent the arm; extending the arm (18) through the aperture (14) of at least one of the discs (12); engaging the arm (18) with the rim (15) of the disc (12); retracting the arm (18) such as to position the rim (15) over the support (16); and displacing the arm such that the rim is engaged by the support, and then repeating this sequence of steps in order to stack a plurality of the discs (12) onto the support (16) for subsequent transfer and unloading.

WO 2004/004983 A3



SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:

15 April 2004

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EPO/07262

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G11B23/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 865 509 A (CARLTON RICHARD J) 12 September 1989 (1989-09-12) abstract; figures 1,2 column 2, line 45 -column 4, line 8 ---	1-7,9, 10,12,13
A	US 5 259 719 A (AKAGAWA MINORU) 9 November 1993 (1993-11-09) abstract; figures ---	1-5,9, 10,12,13
A	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 09, 31 October 1995 (1995-10-31) -& JP 07 153073 A (KAWASAKI HEAVY IND LTD), 16 June 1995 (1995-06-16) abstract; figures 4,5,7 --- -/--	1-13

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

17 February 2004

Date of mailing of the international search report

01/03/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Lumineau, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/E/07262

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>PATENT ABSTRACTS OF JAPAN vol. 0181, no. 30 (M-1570), 3 March 1994 (1994-03-03) -& JP 05 318375 A (NEC CORP), 3 December 1993 (1993-12-03) abstract; figures -----</p>	1-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP/07262

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4865509	A	12-09-1989	US 4907939 A	13-03-1990
US 5259719	A	09-11-1993	NONE	
JP 07153073	A	16-06-1995	NONE	
JP 05318375	A	03-12-1993	NONE	